

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of providing information about a real-world space, comprising:

as a user moves through said space, depositing and storing virtual markers to indicate associated locations visited by the user in the space, the virtual markers each having an initial strength value;

causing the strength values associated with the markers ~~that have been stored~~, either taken in location-dependent aggregations or individually, to decay with time after the markers have been stored; and

using data about the current strength of the stored markers of multiple locations to provide an information item relevant to use of the space.

2. (previously presented) A method according to claim 1, wherein depositing and storing the virtual markers comprises individually storing the virtual markers; and wherein causing the strength values to decay comprises causing the strength values to decay individually, the current strength values of the individual markers being aggregated on a location dependent basis for using data about the current strength of the stored markers of multiple locations .

3. (previously presented) A method according to claim 1, wherein each newly-deposited virtual marker is aggregated on a location-dependent basis with previously-deposited virtual markers by

having its initial strength value aggregated with an existing aggregated strength value, if any, for the previously-deposited markers associated with the same location as the newly-deposited marker, this aggregation constituting, or being effected at the same time as, storage of the newly-deposited marker; causing the strength values to decay being applied to the aggregated strength values.

4. (original) A method according to claim 3, wherein a plurality of storage location cells are provided that each corresponds to a respective area of said space and holds the aggregated strength value for markers deposited in locations within that area, each marker being stored and aggregated by having its initial strength value added to the existing aggregated strength value stored in the location cell that corresponds to the area covering the location associated with the marker.

5. (original) A method according to claim 4, wherein the storage and aggregation of a said marker involves, in addition to increasing the aggregated strength value of the corresponding location cell by the initial strength value of the marker, increasing by a lesser amount the stored strength value of at least one location cell covering a said area adjacent to the area covering the location associated with the marker.

6. (previously presented) A method according to claim 1, wherein causing the strength values to decay is effected independently of using data about the current strength of the stored markers of multiple locations.

7. (previously presented) A method according to claim 1, wherein causing the strength values to decay is effected as a preliminary

to using data about the current strength of the stored markers of multiple locations.

8. (previously presented) A method according to claim 1, wherein causing the strength values to decay comprises decaying the strength values by a fixed amount per unit of time.

9. (previously presented) A method according to claim 1, wherein causing the strength values to decay comprises decaying the strength values by a fixed proportion per unit of time.

10. (previously presented) A method according to claim 1, wherein multiple strength values are associated with each marker or marker aggregation, causing the strength values to decay involving decaying these multiple strength values at different rates whereby to produce multiple current strength values for each stored marker or marker aggregation; using data about the current strength of the stored markers of multiple locations comprising providing multiple types of information item, with the current strength values used when deriving a said information item being dependent on its type.

11. (previously presented) A method according to claim 1, wherein when depositing and storing virtual markers, at least some of said markers are deposited with respective indicators as to whether or not the strength of the marker is to be decayed ; causing the strength values to decay further comprising, for a said marker deposited with a said indicator, checking said indicator and decaying or not decaying the strength of the marker accordingly.

12. (original) A method according to claim 1, wherein said virtual markers are deposited automatically at one of:

- predetermined intervals of time;
- predetermined intervals of distance; or
- predetermined locations in said space.

13. (original) A method according to claim 1, wherein the said virtual markers deposited in respect of each user are deposited by a mobile device carried by the user.

14. (original) A method according to claim 13, wherein the virtual markers are stored in a central system.

15. (original) A method according to claim 1, wherein the said virtual markers are deposited and stored by an infrastructure system that monitors the locations of the users.

16. (previously presented) A method according to claim 1, wherein in depositing and storing virtual markers the virtual markers deposited in respect of a first said user have associated data indicative of the user concerned and are individually stored, using data about the current strength of the stored markers of multiple locations involving providing an information item about the path taken by the first user by identifying the virtual markers associated with that user and using the relative strength values of the markers to determine the direction of progression of the user concerned along said path.

17. (previously presented) A method according to claim 1, wherein using data about the current strength of the stored markers of multiple locations comprises presenting, as said information item, an image of a virtual landscape defined by the relative

strengths of location-dependent marker aggregations mapped to a representation of the space.

18. (previously presented) A method according to claim 1, wherein in using data about the current strength of the stored markers of multiple locations, said information item comprises information about a path through the space, this information being derived by determining a path that follows ridges in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

19. (previously presented) A method according to claim 1, wherein in using data about the current strength of the stored markers of multiple locations, said information item comprises information about a path through the space, this information being derived by determining a path that follows troughs in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

20. (previously presented) A method according to claim 1, wherein in using data about the current strength of the stored markers of multiple locations, said information item comprises information about a path through the space, this information being derived by determining a path that avoids ridges in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

21. (previously presented) A method according to claim 1, wherein in using data about the current strength of the stored markers of multiple locations said information item comprises information about a path through the space, this information being derived by determining a path that avoids troughs in a virtual landscape

defined by the relative strengths of location-dependent aggregations of markers.

22. (previously presented) A method according to claim 1, wherein using data about the current strength of the stored markers of multiple locations involves using the current-strength data to predict a next location for a further user moving through the space having regard to that user's current location, this predicted next location then being used to provide to a mobile device of the further user, as said information item, either the identity of media items associated with that predicted next location or the items themselves.

23. (previously presented) A method according to claim 1, wherein depositing and storing virtual markers comprises depositing a said virtual marker whenever a said user visits a location corresponding to a feature of interest in the space, using data about the current strength of the stored markers of multiple locations involving using the current-strength data of feature-related marker aggregations to provide, as said information item, information about the popularity of the relative features concerned.

24. (previously presented) A method according to claim 1, wherein depositing and storing virtual markers comprises depositing a said virtual marker upon a said user requesting, whilst at a location corresponding to a feature of interest in the space, to be presented with a media item concerning that feature; using data about the current strength of the stored markers of multiple locations involving using the current-strength data of feature-related marker aggregations to provide, as said information item,

information about the relative popularity of the features concerned.

25. (previously presented) A method according to claim 1, wherein using data about the current strength of the stored markers of multiple locations is effected for a further user moving through the space with said information item being provided to that user.

26. (currently amended) Apparatus for providing information about a real-world space, the apparatus comprising:

- a first arrangement arranged to deposit and store virtual markers to indicate associated locations visited by each of multiple users in the space;
- a second arrangement arranged to decay with time the strength values associated with the markers ~~that have been stored~~ after the markers have been stored, either taken in location-dependent aggregations or individually; and
- a third arrangement having a data-processing system arranged to use data about the current strength of the stored markers of multiple locations to provide an information item relevant to use of the space.

27. (previously presented) Apparatus according to claim 26, wherein the first arrangement is arranged to store the virtual markers individually and the second arrangement is arranged to decay the strength values of the markers individually, the third arrangement being arranged to aggregate, on a location dependent basis, the current strength values of the individual markers for use as said data.

28. (original) Apparatus according to claim 26, wherein the first arrangement is arranged to aggregate, on a location-dependent

basis, each newly-deposited virtual marker with previously-deposited virtual markers by having its initial strength value aggregated with an existing aggregated strength value, if any, for the previously-deposited markers associated with the same location as the newly-deposited marker, this aggregation constituting, or being effected at the same time as, storage of the newly-deposited marker; the second arrangement being arranged to decay the aggregated strength values.

29. (original) Apparatus according to claim 27, wherein the first arrangement comprises a plurality of storage location cells that correspond to respective areas of said space, the first arrangement being arranged to store and aggregate each deposited marker by having its strength value added to an existing aggregated strength value, if any, stored in the location cell that corresponds to the area covering the location associated with the marker.

30. (original) Apparatus according to claim 29, wherein the first arrangement is arranged, when storing and aggregating a said marker, not only to increase the aggregated strength value of the corresponding location cell by the strength value of the marker, but also to increase by a lesser amount the aggregated strength value of at least one location cell covering a said area adjacent to the area covering the location associated with the marker.

31. (original) Apparatus according to claim 26, wherein the second arrangement is arranged to decay said strength values independently of the third arrangement.

32. (previously presented) Apparatus according to claim 26, wherein the second arrangement is arranged to decay said strength

values as a preliminary to the data-processing system of the third arrangement using the data on the current strength values.

33. (previously presented) Apparatus according to claim 26, wherein the second arrangement is arranged to decay said strength values by a fixed amount per unit of time.

34. (previously presented) Apparatus according to claim 26, wherein the second arrangement is arranged to decay said strength values by a fixed proportion per unit of time.

35. (previously presented) Apparatus according to claim 26, wherein the first arrangement is arranged to associate multiple strength values with each marker or marker aggregation, the second arrangement being arranged to decay these multiple strength values at different rates whereby to produce multiple current strength values for each stored marker or marker aggregation, and the data-processing system of the third arrangement being arranged to provide multiple types of information item, with the current strength values used when deriving a said information item being dependent on its type.

36. (original) Apparatus according to claim 26, wherein the first arrangement is arranged to cause at least some of said markers to be deposited with respective indicators as to whether or not the strength of the marker is to be decayed; the second arrangement being further arranged, for a said marker deposited with a said indicator, to check said indicator and to decay or not decay the strength of the marker accordingly.

37. (original) Apparatus according to claim 26, wherein the first arrangement comprises mobile devices intended to be carried by

said multiple users, each mobile device being arranged to deposit said virtual markers in respect of a said user carrying the device.

38. (original) Apparatus according to claim 37, wherein the first arrangement further comprises a central system for storing the virtual markers deposited by the mobile devices.

39. (previously presented) Apparatus according to claim 26, wherein the first arrangement comprises an infrastructure system arranged to monitor the locations of the users and to deposit and store said virtual markers.

40. (previously presented) Apparatus according to claim 26, wherein the first arrangement is arranged to deposit and individually store, in respect of a first said user, virtual markers with associated data indicative of the user concerned, the data-processing system of the third arrangement being arranged to provide, as said information item, information about the path taken by the first user by identifying the virtual markers associated with that user and using the relative strength values of the markers to determine the direction of progression of the user concerned along said path.

41. (previously presented) Apparatus according to claim 26, wherein the data-processing system of the third arrangement is arranged to provide, as said information item, an image of a virtual landscape defined by the relative strengths of location-dependent marker aggregations mapped to a representation of the space.

42. (previously presented) Apparatus according to claim 26, wherein the data-processing system of the third arrangement is arranged to derive, as said information item, information about a path through the space by determining a path that follows ridges in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

43. (previously presented) Apparatus according to claim 26, wherein the data-processing system of the third arrangement is arranged to derive, as said information item, information about a path through the space by determining a path that follows troughs in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

44. (previously presented) Apparatus according to claim 26, wherein the data-processing system of the third arrangement is arranged to derive, as said information item, information about a path through the space by determining a path that avoids ridges in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

45. (previously presented) Apparatus according to claim 26, wherein the data-processing system of the third arrangement is arranged to derive, as said information item, information about a path through the space by determining a path that avoids troughs in a virtual landscape defined by the relative strengths of location-dependent aggregations of markers.

46. (previously presented) Apparatus according to claim 26, wherein the data-processing system of the third arrangement is arranged to use the current-strength data to predict a next location for said further user having regard to that user's

current location, the data-processing system being further arranged to use the predicted next location to provide to a mobile device of the further user, as said information item, either the identity of media items associated with that predicted next location or the items themselves.

47. (previously presented) Apparatus according to claim 26, wherein the first arrangement is arranged to deposit a said virtual marker whenever a said user visits a location corresponding to an item of interest, the data-processing system of the third arrangement being arranged to use the current-strength data of feature-related marker aggregations to provide, as said information item, information about the relative popularity of items of interest in said space.

48. (previously presented) Apparatus according to claim 26, wherein the first arrangement is arranged to deposit a said virtual marker upon determining that a said user is at a location corresponding to a feature of interest in the space and has requested to be presented with a media item concerning that feature, the data-processing system of the third arrangement being arranged to use the current-strength data of feature-related marker aggregations to provide, as said information item, information about the relative popularity of the features concerned.

49. (previously presented) Apparatus according to claim 26, wherein the third arrangement comprises a mobile device for enabling a further user in said space to request and be presented with said information item.

50. (previously presented) A method according to claim 1, wherein causing the strength values associated with the markers to decay with time comprises:

causing the strength values to decay to limit the lifetime of the markers.

51. (previously presented) A method according to claim 26, wherein the second arrangement decays with time the strength values associated with the markers to limit the lifetime of the markers.